

Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A motion sensor comprising:

an assembly having suspension members, the suspension members isolating the assembly and components mounted on the assembly from vibrations and passing digital signals between at least one component mounted on the assembly and an external controller not mounted on the assembly;

a vibrating member mounted on the assembly;

a driver mounted on the assembly for driving the vibrating member;

a sensor mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly, the sensor outputting an analog signal responsive to the rotation of the assembly; and

digital electronics mounted on the assembly and coupled to the driver, ~~the sensor and sensor, and~~ the suspension members, the digital electronics applying a drive signal to the driver, receiving the analog signal from ~~the sensor and~~ sensor, and transmitting, through at least one of the suspension members, digital data indicative of the rotation of the assembly to the external controller.

2. (canceled)

3. (previously presented) A motion sensor as in clam 1 wherein the at least one suspension member is a conductive helical spring.

4. (previously presented) A motion sensor as in clam 3 wherein the digital data is communicated serially using a digital communication protocol.

5. (previously presented) A motion sensor as in claim 1 wherein the digital electronics stores a calibration value and calibrates the digital data in response thereto.

6. (original) A motion sensor as in claim 5 wherein the calibration value is generated external to the digital electronics and transmitted to the digital electronics digitally over at least one of the suspension members.

7. (original) A motion sensor as in claim 5 wherein the calibration value is generated by the digital electronics.

8. (canceled)

9. (previously presented) A motion sensor as in claim 1 wherein the digital electronics stores a digital value transmitted over at least one of the suspension members that controls the amplitude of vibration of the vibrating member.

10. (previously presented) A motion sensor as in claim 1 further comprising a driver coupled to the vibrating member, wherein the digital electronics stores a digital value transmitted over at least one of the suspension members that controls the start-up frequency of the driver.

11. (original) A motion sensor as in claim 7 wherein the digital electronics includes an auto-calibration loop that determines the calibration factor and wherein the digital electronics further stores a digital startup value transmitted over at least one of the suspension members that seeds the calibration factor at startup.

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

21. (canceled)

22. (currently amended) A rotational rate gyroscope comprising:

an assembly having helical springs, the helical springs isolating the assembly and components mounted on the assembly from vibrations and passing digital signals between at least one component mounted on the assembly and an external controller not mounted on the assembly;

a vibrating member mounted on the assembly;

a driver mounted on the assembly for driving the vibrating member;

a sensor mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly, the sensor outputting an analog signal responsive to the rotation of the assembly; and

digital electronics mounted on the assembly and coupled to the driver, the ~~sensor and~~
sensor, and the helical springs, the digital electronics applying a drive signal to the driver,

receiving the analog signal from the ~~sensor and~~ sensor, and transmitting, through at least one of
the helical springs, digital data indicative of the rotation of the assembly to the external
controller.

23. (new) A motion sensor comprising:

an assembly having suspension members, the suspension members isolating the
assembly and components mounted on the assembly from vibrations and passing digital signals
between at least one component mounted on the assembly and an external controller not
mounted on the assembly;

a vibrating member mounted on the assembly;

a sensor mounted on the assembly for detecting movement of the vibrating member in
response to rotation of the assembly, the sensor outputting an analog signal responsive to the
rotation of the assembly; and

digital electronics mounted on the assembly and coupled to the sensor and the
suspension members, the digital electronics including a programmable digital accumulator that
accumulates a programmable number of digital samples of the analog signal from the sensor
and transmits, through at least one of the suspension members, digital data indicative of the
rotation of the assembly to the external controller, the programmable number of digital samples
from the analog signal allowing a flexible response time.